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SECRET

ROUTING AND RECORD SHEET

INSTRUCTIONS: Officer designations should be used in the "TO" column. Under each comment a line should be drawn across sheet and each comment numbered to correspond with the number in the "TO" column. Each officer should initial (check mark insufficient) before further routing. This Routing and Record Sheet should be returned to Registry.

FROM: FE/RDRB Voting Member

NO.

DATE

TO	ROOM NO	DATE REC'D	DATE FWD'D	OFFICER'S INITIALS	COMMENTS
1. Chief LD/RD	qts "Eye"	27 June			Request for info concerning status of development and availability of equipment placed with Air Force R&D on 25 July '51 HLC
2. ES		28 June		HLC P.A.L.	[redacted] 50X1 (Mountain Home) reports U.V. tested at Eggland, report held by Major [redacted] out at Mt. Home now 50X1 we can fly out to get details 26 July HLC
3. Nancy.	(file)				2-3 Please start file ~~Equipment & Personnel~~ Equipment, Pathfinder Type HLC.
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FORM NO. 51-10
FEB 1950

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18 June 1951

MEMORANDUM FOR: CHIEF, LD/RD

SUBJECT : Request for Development of Special Devices to be Used in Connection With Aerial Delivery of Personnel and Equipment.

NOTE: Preliminary discussion concerning the practicability of using the following devices has been discussed with R&D staff II.

1. Aerial delivery of personnel and equipment in the FE area of responsibility will become increasingly dangerous due to increasing enemy air activity. Before long, all air deliveries will, of necessity, be made at night.

2. The successful completion of a "night delivery" mission will demand the use of trained air crews and electronic aids. This request deals with the special devices believed necessary to insure adequate air support for OPC.

3. The two major problems are (1) adequate pathfinder equipment that may be operated by DZ (Drop Zone) personnel to insure location of the DZ at night, and (2) a means of rapidly locating equipment dropped in and around the DZ area.

4. To overcome the two major problems, the following equipment is required:

a. Pathfinder equipment

(1) URC-4 (or URC-5) radio transmitter and receiver

(2) ARA-8 homing adapter

(3) Ultraviolet floodlight installed on aircraft

(4) Fluorescent reflectors to be used by DZ personnel

b. Locator equipment

(1) Fluorescent tape reflectors

(2) Ultraviolet flashlight

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5. The URC-4 radio and the ARA-8 homing adapter is now standard Air Force equipment and may be obtained by requisition. The ultraviolet floodlight for installation on the airplane may not be available but could be fabricated from existing equipment on the market. The fluorescent reflector to be used to mark the DZ may be available. If not, it can probably be developed.

6. The fluorescent tape reflector also may be available. If not, it can probably be developed also. The ultraviolet flashlight is probably not available on the market and would have to be designed and manufactured.

7. A general description of the operational use of the above equipment is as follows:

a. The ground crew at the DZ (Drop Zone) would be furnished one or two URC-4 radio transmitter--receivers and the necessary fluorescent reflectors to adequately mark the DZ.

b. The airplane used for delivery of personnel and equipment would be equipped with an ultraviolet floodlight powerful enough to pick up the fluorescent reflectors from a minimum distance of two miles.

c. The following procedure would be followed by DZ personnel in furnishing adequate pathfinder techniques: the URC-4 radio operator would go on the air approximately 15 minutes prior to ETA of aircraft over DZ. Two-way radio contact can be made by voice or code for distances ranging up to 90 miles. The URC-4 would put out a signal which is used as a homer station. The aircraft will track-in on this homer station by using the ARA-8 adapter installed in the aircraft.

d. The DZ personnel would mark the DZ by positioning the fluorescent reflectors. As the aircraft approaches the cone of silence over the URC-4 transmitter, it will receive instructions concerning the track-in and the wind direction and velocity. Immediately upon leaving the cone of silence, the pilot would turn on the ultraviolet floodlight and pick up the reflectors located at the DZ. These reflectors would be so designed as to reflect the ultraviolet light only in the direction of the light source. It is believed that with an experienced crew, the entire operation could be accomplished in one pass over the DZ and no circling would be required.

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8. The fluorescent tape reflectors would be attached to the packages or equipment that is dropped at the DZ. The DZ personnel would be equipped with an ultraviolet flashlight with sufficient power to pick up the fluorescent tape reflectors at distances of at least 50 yards. The fluorescent tape reflectors could be so constructed as to not only reflect ultraviolet light but also to reflect white light. It is believed that the use of this locator equipment would greatly facilitate the finding of equipment which is dropped inadvertently outside the DZ.

9. Operational requirements.

a. Actual tests using the subject devices should be accomplished and if proven satisfactory, it is contemplated that it will be used in all FE areas of responsibility.

b. The ultraviolet flashlight should be made into a water-proof case and should be so constructed that it can easily be carried in a man's pocket.

c. Camouflage will not be required other than insuring that all equipment is sterile.

d. The individuals who will be required to use these devices may be easily taught how to operate them. It is contemplated that our indigenous personnel will be operating this equipment in the DZ.

e. This equipment should be so constructed as to stand the rough treatment it would receive being carried about over rough terrain and to stand up under the landing shocks of paratroop jumps.

10. It is believed that the Air Force, at the present time, is experimenting in the use of the ultraviolet light and fluorescent reflecting tape. The Air Force is using this equipment to experiment with night landings. The United States Air Force is conducting these tests at Colorado Springs. Another source of information is Professor Brian O'Brian, Professor of Optics at the University of Rochester, Rochester, New York. He may have information concerning the construction of these devices.

50X1

~~Division Material Officer~~
FE RDRB Voting Member

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